The background of the entire page is a photograph of the Gherkin building in London at night. The building's facade is covered in a grid of small, circular, reflective panels that catch the city lights, creating a shimmering effect. A prominent feature is a large, curved, metallic structure that wraps around the building's upper section. The building is illuminated from within, and the surrounding city lights and street lamps are visible in the foreground and background.

The **Institution**
of **Structural**
Engineers

University guide for
**aspiring
structural
engineers**

www.istructe.org

What is Structural Engineering?

Structural engineers design, create, solve problems, innovate and use maths and science to shape the world. The structures they create are used by all of us every day: from houses, theatres, sports stadia and hospitals, to bridges, oil rigs and space satellites.

Structural engineers are involved at every stage of a structure's realisation. Working with architects, structural engineers create conceptual designs and ensure that the structure can be built and is stable and durable.

Structural analysis enables engineers to understand the effects of loads/stresses caused by gravity, the users of the structure, and the widely varying climatic conditions and ground conditions around the world. Choosing appropriate materials for the structure is also an important feature of the structural engineer's work.

"I will never forget the sense of pride I felt the first time I visited a building I had designed."

VICTORIA JANSSEN,
STRUCTURAL ENGINEER,
HONG KONG

A career in structural engineering involves team working, creative problem solving, practical skills (such as sketching and drawing) and using computer models to create structures and specifications for contractors.

Structural engineers can specialise in a range of fascinating areas including conservation, sustainability, seismic and humanitarian engineering.

"It's great when I see a concept realised into a real structure. It's an idea turned into reality because of a team of like-minded professionals."

SAVITREE SINGH, STRUCTURAL ENGINEER, TRINIDAD



"My job as a structural engineer allows me to create something real that you can touch and say 'I did that!' I love designing structures that are beautiful and functional, and improve people's lives."

DAVID KNIGHT,
SENIOR ENGINEER, LONDON

What qualifications do I need?

We recommend that you take mathematics and physics A levels (England, Wales and Northern Ireland) or Scottish Highers. For your other A levels/Scottish Highers you can choose from a variety of subjects, but we recommend chemistry, geography, design technology or further mathematics. Alternatively you can apply for a civil/structural engineering degree with a level 3 BTEC.



To apply for an MEng degree you will usually be expected to achieve a minimum of 300 UCAS points. For a BEng (Hons) degree the expectation is usually a minimum of 225 UCAS points.



Other things to consider

- Headstart runs engineering taster programmes for sixth form students, allowing you to 'try before you apply': www.etrust.org.uk/headstart.
- Key Information Sets (KIS) gives a quick overview of some courses, covering areas such as student satisfaction and graduate employment. UK universities and colleges are required to display Key Information Sets (KIS) relating to undergraduate courses on their websites. More detailed comparative information about courses can be found on the Unistats website: unistats.ac.uk.
- University guides are published in newspapers such as The Times and the Guardian. Please remember however, that these guides do not always measure the same things when comparing courses.

- University open days are vital when deciding which courses to apply for. They allow you to visit the town, city or campus, have a look around the department and speak to university staff and students. It is important that you are happy living in the location of your university for three or four years so take the chance to see what a university is like for yourself.



Which university course should I choose?

There are numerous degree courses which will set you on the right path to becoming a structural engineer. These include:

- Civil Engineering
- Civil and Structural Engineering
- Architectural Engineering
- Structural Engineering with Architectural Design
- General Engineering (Civil Engineering Pathway)

Accredited degrees in these areas ensure that the core syllabus is the same for all the courses. In addition to compulsory material, there will be an opportunity to select options, depending on your interests.

At some universities, it's possible to gain industrial experience or to study abroad as part of your degree:

Degrees with industrial experience

In addition to their academic studies, students spend a year working for a consulting engineer or contractor. This enables you to gain valuable work experience, and also puts your learning into context.



“It’s rewarding to see the skills you have learned in a university setting pay off in industry, and be a benefit to society.”

DARRAGH NOBLE, PHD RESEARCHER,
REPUBLIC OF IRELAND



Degrees with a year abroad

This will usually take place during the second year of a Bachelors degree or the third year of a MEng Masters programme. Students study and are assessed on the overseas university's syllabus.

There's a full range of course options on the UCAS website www.ucas.com.



Which degree is right for me?

The type of programme you choose will depend on your career aspirations, and also on the course entry requirements. There are several different types:

Bachelor degrees

Bachelor of Science (BSc), Bachelor of Engineering (BEng) or BSc or BEng with Honours (Hons). These degrees generally involve studying for three years (four in Scotland). They are usually accredited as satisfying the academic requirements for AMIStructE (IEng) and/or partially accredited for MIStructE (CEng). Further learning will be required to fully satisfy the academic requirement for MIStructE (CEng).

Masters degrees

A Master of Engineering (MEng) involves four years of study (five in Scotland). The final year of these degrees normally involves a significant research and design project. These degrees are usually accredited as satisfying the academic requirements of MIStructE (CEng).

The degree you choose

Your choice of degree will determine which grade of membership of The Institution of Structural Engineers you are eligible to work towards after you graduate:

- **Degrees accredited for IEng registration** will enable you to work towards becoming an Associate-Member (AMIStructE)
- **Degrees accredited for CEng registration** will enable you to work towards becoming a Chartered Member (MIStructE)



Should I choose an 'accredited' course?



lead to improved career prospects, higher earnings potential and international mobility.

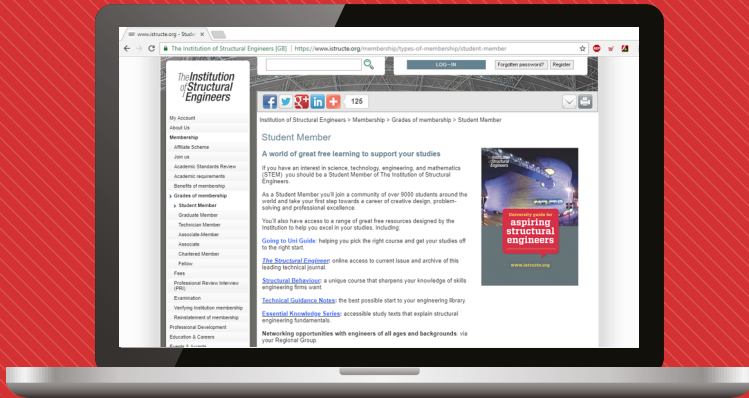
Membership of The Institution of Structural Engineers is recognised around the world as a mark of a highly trained professional and a world-class engineering specialist.

An accredited degree course is recognised by international professional organisations like The Institution of Structural Engineers and various employers. Accredited degrees therefore make it easier for you to find employment and gain membership once you've graduated.

Achieving professional registration is a mark of recognition of an engineer's competence and commitment, and can

“An accredited degree was essential in getting my first job, and allowing me to progress to Chartered Membership of the The Institution of Structural Engineers.”

DAVID KNIGHT,
SENIOR ENGINEER, LONDON



Become a Student Member of The Institution of Structural Engineers

Access a world of great free learning to support your studies.

If you have an interest in science, technology, engineering, and mathematics (STEM) – or design in general - you should be a Student Member of The Institution of Structural Engineers.

As a Student Member you'll join a community of over 9000 students around the world and take your first step towards a career of creative design, problem-solving and professional excellence.

You'll also have access to a range of great free resources designed by the Institution to help you excel in your studies, including:

- **The Structural Engineer:** online access to current issue and archive of this leading technical journal.
- **Structural Behaviour:** a unique course that sharpens your knowledge of skills engineering firms want.
- **Technical Guidance Notes:** the best possible start to your engineering library.
- **Essential Knowledge Series:** accessible study texts that explain structural engineering fundamentals.
- Networking opportunities with engineers of all ages and backgrounds: via your Regional Group.

Become a Student Member at:

[istructe.org/studentmembership](https://www.istructe.org/studentmembership)

For further information on structural engineering careers and education, please contact education@istructe.org.

*The Institution
of Structural
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